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TE-2

CNL Assignment-4

Q.1. Explain difference between IP v4 and IP v6.

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	IP v4	IP v6
1.	IP v4 is 32 bit IP address whereas.	1: IP v6 is 128 Bit IP address.
2.	It is a numeric addressing	2. It is an alphanumeric.
3.	offers 12 header fields	3. offers 8 header fields
4.	has checksum fields	4. Dosen't have checksum fields
5.	connectionless Protocol Allowing simple virtual communication layer over diversified devices.	5. Hierarchical addressing and routing infrastructure
	eg: 127.255.255.255	eg: 2001:0db8:85a3:0000 :0000:8a2e:0370:73

Q.2. Explain Header of IP v4 with diagram.

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- IPV4 header format is of 20 to 60 bytes in length, contains information essential to routing and delivery consist of 13 fields, VER, HLEN, service type, total length, identification, flags, ... etc.
- where each has it own features and provides essential data required to transmit the data.

An IPv4 packet header has total of 14 fields, among these 14 fields only one is optional which is aptly known as options component.

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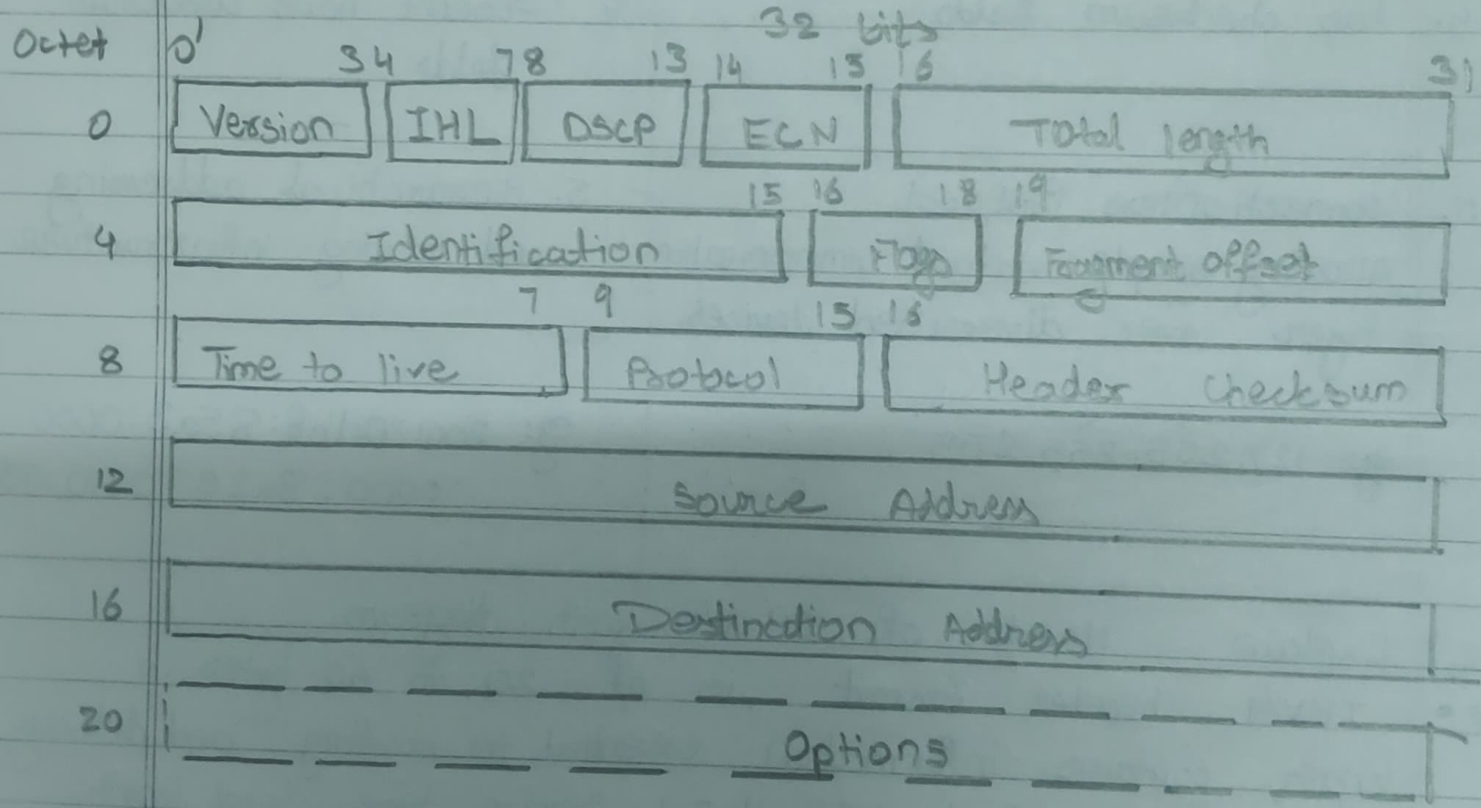
1. Version
2. Internet header length
3. Type of service
4. Explicit Congestion Notification
5. Total Length
6. Identification
7. Flags
8. Fragment offset
9. Time to live
10. Protocol
11. Checksum of header
12. Source Address
13. Destination Address
14. Options.



Q.3. Explain classes of IP addressers:

→ 1) Class A:

In class A network, first eight bits is the network part of address, with remaining part of address being host part of address. There are 128 possible class A networks.

0.0.0.0 to 127.00.0

2) Class B:

In class B network, the first 16 bits are network part of address. All class B networks have their first bit set to 1 and second bit set to 0. The decimal notation, that makes 128.0.0.0 to 191.255.0.0 as class B networks. There are 16,384 possible class B networks.

eg: 135.58.24.17

3) Class C:

In class C network, first two bits are set to 1, and third to 0. That makes first 24 bits of address the network address and remainder as the host address Class C range from 192.0.0.0 to 223.255.255.0. There are 2 million possible class C networks.

eg: 192.168.178.1

4) Class D:

Class D addresses are used for multi casting applications. Class D addresses have their first three bits set to 1 and fourth to 0.

Range - 224.0.0.0 - 239.255.255.255

eg: 227.21.6.123

4) Class E:

These networks are defined by having first four network address bits as 1. That encompasses addresses from 240.0.0.0 to 255.255.255.255. While its reserved, its usage was never defined. Most network implementations discard these addresses as illegal or undefined.

eg: 243.164.89.28.